Message

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Sent: 3/9/2018 12:54:24 AM
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Subject: HP Regulators' statistical approach
Attachments: EPA memo on statistical sampling approach 2.22.18.pdf

Laura and Lawrence,

Enrique asked me to forward on his behalf the details supporting the Regulators' percent sampling/confidence levels associated with our prove-out proposal for Parcel G trench and building site survey units, as discussed at our February 16 meeting. See attached memo from one of our statisticians.

In order to support confident decision making that Parcel G trench and building site survey units meet Hunters Point ROD radiological cleanup levels with a high probability, EPA used the Visual Sample Plan (VSP) software tool based on several key assumptions. VSP was developed with support from DOE, EPA, DoD, the Department of Homeland Security (DHS), the Centers for Disease Control (CDC), and the United Kingdom. Applied properly, VSP is a tool that supports the development of a technically credible sampling plan based on statistical sampling theory and the statistical analysis of sample results.

At this site, EPA recommends achieving a high level of confidence. A 95% confidence level has been chosen for the determination of the initial effort, with the knowledge that the final confidence will actually be >95% given that all survey units will receive some level of assessment of the presence of radionuclides. Nationwide, this level of confidence is common for ensuring compliance with cleanup standards.

As a first step, EPA recommends prioritizing full excavation of trenches that have the highest concerns (targeted vs. random). Analysis using VSP concluded that if 21 targeted trench units (33% of 63 total) do not show exceedances of cleanup standards (using MARSSIM Class 1 evaluation), then Step 1 would show with 95% confidence that 95% of the total trench units would also not exceed standards. However, if even one trench unit shows exceedances, then we will no longer be able to achieve the desired confidence, and 100% excavation and 100% rescanning would be required for all trench units. If Step 1 shows no exceedances, then Step 2 would conduct further work (using a modified MARSSIM Class 2 or Class 3 evaluation) on the remaining trench units (67%) to increase the confidence level above 95%.

We followed a similar process to calculate the percent sampling required for building site survey units.

Let me know if you or your staff have any questions.

Thanks,

John

John Chesnutt
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